

IN THE CLAIMS

1 (Original). A method comprising:

treating an unexposed photoresist with an electric field.

2 (Original). The method of claim 1 wherein treating includes exposing a photoresist to an electric field to reduce the horizontal extent of aggregates formed in the photoresist.

3 (Original). The method of claim 1 wherein treating includes reducing line edge roughness by exposing photoresist to an electric field before exposing the photoresist to radiation.

4 (Original). The method of claim 1 wherein treating the photoresist includes exposing said photoresist to an electric field while the photoresist is above its glass transition temperature.

5 (Original). The method of claim 4 including causing said photoresist to exceed its glass transition temperature by heating said photoresist.

6 (Original). The method of claim 5 including causing said photoresist to exceed its glass transition temperature by solvent-induced depression.

7 (Original). The method of claim 1 wherein treating an unexposed photoresist includes using an electrode to generate said electric field, said electrode having an opening that enables said photoresist to be exposed to radiation.

8 (Original). The method of claim 1 wherein treating includes depositing a conductive layer on said photoresist in order to apply an electric field to said photoresist.

9 (Original). The method of claim 1 wherein treating an unexposed photoresist with an electric field includes generating said electric field by passing alternating current through a coil.

10 (Original). The method of claim 9 including using a radio frequency coil.

11 (Original). A method comprising:

forming a conductive layer over photoresist; and
exposing said photoresist to an electric field using said layer.

12 (Original). The method of claim 11 including depositing said layer to enable radiation to pass through said layer.

13 (Original). The method of claim 11 including depositing a conductive material to form said layer and removing said layer after the photoresist is developed.

14 (Original). The method of claim 11 including spinning on said conductive layer.

15 (Original). The method of claim 11 wherein forming a conductive layer includes depositing a water soluble conductive material to act as said conductive electrode.

16 (Original). A method comprising:

treating a photoresist with an electric field generated by passing alternating current through a coil.

17 (Original). The method of claim 16 including arranging said coil so as to allow said photoresist to be exposed to radiation.

18 (Original). The method of claim 16 including exposing said photoresist to said electric field while said photoresist is being exposed to radiation to transfer a pattern to said photoresist.

19 (Original). The method of claim 16 including using a radio frequency coil.

20 (Original). A method comprising:

exposing photoresist to radiation; and

while exposing said photoresist to radiation, exposing said photoresist to an electric field.

21 (Original). The method of claim 20 including exposing said photoresist to an electric field using an electrode with an opening to permit the passage of radiation.

22 (Original). The method of claim 20 including exposing said photoresist to radiation through an electrode which is thin enough to allow said radiation to pass.

23 (Original). The method of claim 20 including exposing said photoresist to an electric field using a radio frequency coil to induce said electric field.

24 (Original). The method of claim 20 including exposing the photoresist to extreme ultraviolet radiation.

25 (Original). A method comprising:

forming a photoresist on a substrate;

baking said photoresist before exposure; and

while baking said photoresist, applying an electric field.

26 (Original). The method of claim 25 including exposing said photoresist to an electric field using a radio frequency coil.

27 (Original). The method of claim 25 including exposing said photoresist to an electric field using an electrode with an opening therethrough.

28 (Original). The method of claim 27 including using a ring shaped electrode.

29 (Original). The method of claim 25 including exposing said baked photoresist to extreme ultraviolet radiation.

30 (Original). A method comprising:

developing an irradiated photoresist; and
while developing said irradiated photoresist, exposing said photoresist to an electric field.

31 (Original). The method of claim 30 including causing the resist development rate to be higher at the bottom of the photoresist than at the top.

32 (Original). The method of claim 30 including applying an AC potential to said photoresist.

33 (Original). The method of claim 30 including applying a DC potential to said photoresist.

34 (Withdrawn). A semiconductor structure comprising:

a substrate having a plane;
photoresist on said substrate; and
aggregates dispersed through said photoresist, said aggregates being aligned substantially transversely to the plane of said substrate.

35 (Withdrawn). The structure of claim 34 wherein said photoresist is a hydrogen-bonding polymer or copolymer.

36 (Withdrawn). The structure of claim 34 wherein said substrate is a wafer.

37 (Withdrawn). A semiconductor structure comprising:

a substrate;
a photoresist over said substrate; and

a soluble conductive layer formed over said photoresist, said conductive layer to apply an electric field to said photoresist.

38 (Withdrawn). The semiconductor structure of claim 37 wherein said conductive layer comprises a functionalized polythiophene polymer.

39 (Withdrawn). The semiconductor structure of claim 38 wherein said conductive layer comprises a functionalized polythiophene polymer and onium sulfonate salt.

40 (Withdrawn). The semiconductor structure of claim 37 wherein said conductive layer comprises a functionalized polythiophene polymer and an ammonium sulfonate salt.